Volunteer Lake Assessment Program Individual Lake Reports

HARRISVILLE POND, HARRISVILLE, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	8,064	**Max. Depth (m):**	12.5	**Flushing Rate (yr^{-1})**	8.4
Surface Area (Ac.):	120	**Mean Depth (m):**	4.7	**P Retention Coef:**	0.39
Shore Length (m):	5,300	**Volume (m^3):**	2,264,500	**Elevation (ft):**	1318

TROPHIC CLASSIFICATION

Year	Trophic class
1987	EUTROPHIC
2006	MESOTROPHIC

KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

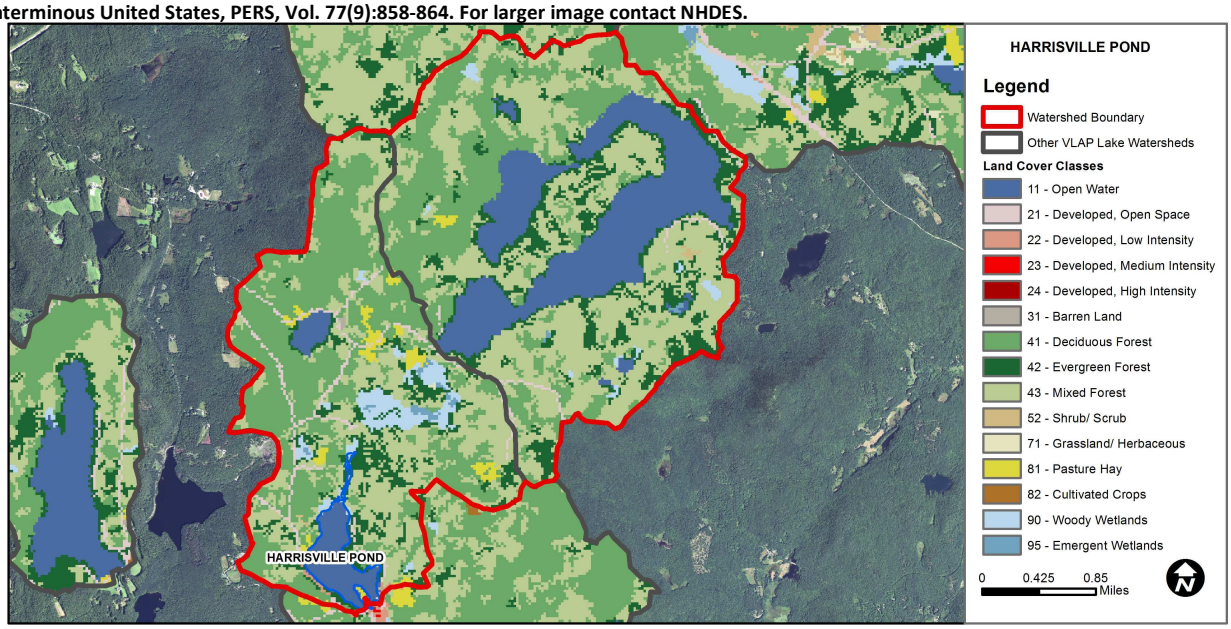
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator and the chlorophyll a indicator is okay.
	pH	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	Oxygen, Dissolved	Very Good	There are a total of at least 10 samples with 0 exceedances of criteria.
	Dissolved oxygen satura	Good	There are at least 10 samples with one, but < 10% of samples, exceeding criteria.
	Chlorophyll-a	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator.
Primary Contact Recreation	Escherichia coli	Very Good	Where there are no geometric means, all bacteria samples are < 75% of the geometric mean. Where there are geometric means all single bacteria samples are < the SSMC and all geometric means are < geometric mean criteria.
	Chlorophyll-a	Very Good	There are a total of at least 10 samples with 0 exceedances of indicator.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

HARRISVILLE LAKE - SUNSET TOWN BEACH	Escherichia coli	Good	There are geometric means and all geometric means are < geometric mean criteria; and there has been a single sample exceedance.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	16.2	Barren Land	0.04	Grassland/Herbaceous	0.02
Developed-Open Space	1.8	Deciduous Forest	30.78	Pasture Hay	1.29
Developed-Low Intensity	0.13	Evergreen Forest	11.7	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	35.33	Woody Wetlands	2.34
Developed-High Intensity	0	Shrub-Scrub	0.08	Emergent Wetlands	0.35

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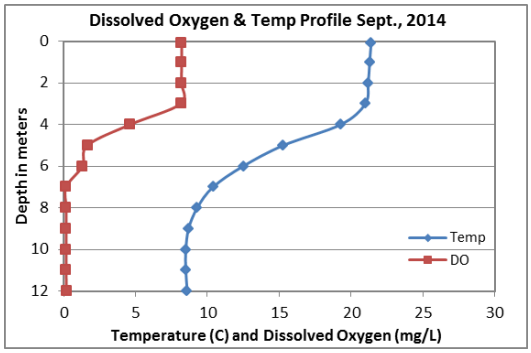
Harrisville Pond, Harrisville

2014 Data Summary

Observations and Recommendations (*Refer to Table 1 and Historical Deep Spot Data Graphics)*

- **Chlorophyll-a:** Chlorophyll levels were slightly elevated and greater than the state median. However, historical trend analysis indicates significantly decreasing (improving) chlorophyll levels since 1991.
- **Conductivity/Chloride:** Deep spot, Jane Dunn Inlet and Library Outlet conductivity levels were low and less than the state median. Historical trend analysis indicates significantly decreasing (improving) epilimnetic (upper water layer) conductivity levels since 1991. Cemetary Inlet conductivity and chloride levels were slightly elevated indicating impacts from winter road maintenance.
- **Total Phosphorus:** Epilimnetic and Metalimnetic (middle water layer) phosphorus levels were low and less than the state median. Historical trend analysis indicates relatively stable epilimnetic phosphorus with moderate variability. Hypolimnetic phosphorus was within an average range for that station. Cemetary Inlet, Jane Dunn Inlet and Outlet phosphorus levels were low.
- **Transparency:** Transparency was good and better than the state median. Transparency measured with the viewscope (VS) was better than that without and likely a better representation of actual conditions. Historical trend analysis indicates relatively stable transparency with moderate variability between years.
- **Turbidity:** Epilimnetic and Metalimnetic turbidities were low. Hypolimnetic (lower water layer) turbidity was elevated likely due to the accumulation of organic compounds as the summer progressed and dissolved oxygen levels were depleted to less than 1.0 mg/L in the hypolimnion. Jane Dunn Inlet and Outlet turbidities were low. Cemetary Inlet turbidity was elevated and samplers indicated low flow conditions.
- **pH:** Deep spot pH levels were less than the desirable range 6.5-8.0 units and have fluctuated below desirable levels historically. Historical trend analysis indicates relatively stable epilimnetic pH with moderate variability between years. Jane Dunn Inlet pH levels were also less than desirable.
- **Recommended Actions:** Increase monitoring frequency to once per month during the summer, typically June, July and August. This will allow better assessment of seasonal water quality and historical water quality trends, and decrease variability among data. Overall, water quality fluctuates between low and average ranges. Encourage local road agents to obtain a Voluntary NH Salt Applicator License through the UNH Technology Transfer Center's Green SnowPro Certification Program. More information can be found at www.t2.unh.edu/green-snowpro-training-and-certification. Keep up the great work!



NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: > 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: between 6.5-8.0 (unless naturally occurring)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

Station Name	Table 1. 2014 Average Water Quality Data for HARRISVILLE POND								
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	Total P ug/l	Trans. m		Turb. ntu	pH
						NVS	VS		
Epilimnion	2.00	5.89		21.8	7	3.90	4.55	0.65	6.34
Metalimnion				23.8	6			0.88	5.81
Hypolimnion				30.8	13			5.33	5.74
Cemetary Inlet			40	164.3	6			5.56	6.64
Jane Dunn Inlet				22.0	8			0.44	5.61
Library Outlet				22.8	5			0.64	6.48

Historical Water Quality Trend Analysis

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	Improving	Data significantly decreasing.	Chlorophyll-a	Improving	Data significantly decreasing.
pH (epilimnion)	Stable	Trend not significant; data moderately variable.	Transparency	Stable	Trend not significant; data moderately variable.
			Phosphorus (epilimnion)	Stable	Trend not significant; data moderately variable.